AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 7, as follows:

The microbiological procedures enable the microorganisms to be selectively cultivated and these, when in physical contact with a conveniently constructed fiber optic circuit, permit the detection and monitoring of the microorganisms in a fast and accurate way. ~~The device overall is physically consisted of three subsystems:~~

Please amend the paragraphs appearing at page 10, line 17 – page 11, line 23, as follows:

With the purpose of resolving the existing inconveniencies in the state of the art, the present invention ~~was developed, that consists in~~ provides a sensor for microorganisms based on a technology composed of microbiological procedures combined with a fiber optic device.

The microbiological procedures consist in permitting the growth of a selective culture of a determined microorganism in an adequate support such as, for example, ~~o Petri~~ a Petri dish or a slide where the medium is composed of nutrients appropriate to the growth and viability of the microorganism and their quantity, pH and temperature are precisely controlled. The choice of the selective culture medium will depend on the microorganisms to be monitored being, however, of common knowledge to experts in the field. The optimization of the culture medium shall be undertaken with specific nutrients, such as: substance(s) source(s) of nitrogen, for instance industrial residues rich in protein, soya protein, urea, yeast extract; (ii) substance(s) source(s) of carbon, for instance manitol, dextrose, sacharose; and substance(s) source(s) of micronutrients, selected from, for instance, mixtures of salts involving $MgSO_4$, $MnSO_4$, $ZnSO_4$, $FeSO_4$ and $CaCl_2$. As an option, it is possible to use reactants that are capable of altering the properties of the culture medium in a manner as to permit ~~that~~ the index of refraction of

the subject~~is~~ to be better detected. In other words, these reactants will favor the fiber-microorganism interaction. In this manner, it is possible to have a composition containing selective culture medium for the microorganism chosen for detection and reactants capable of altering the culture medium so as to permit~~that~~ the index of refraction of the subject~~is~~ to be better detected.

Please amend the paragraphs appearing at page 18, line 25 – page 21, line 20, as follows:

FIGURE 1 shows the diagram of the preferred assembly of the present invention, in other words, the implementation of survey technology for microorganisms by fiber optics. An optical source (1) that may be constituted by an electrical luminescent diode (LED) or a semiconductor laser (LD), possesses the function of generating light in a continuous mode, modulating or pulsing, that shall be used in the circuit of the microorganism survey. The light produced by the optical source is applied to the circuit through a fiber optic coupling of the 2x1 type (2), also called a WDM coupling. The other source of entry (3) of the 2x1 coupling is constituted, in reality, by an exit, so that the light processed by the survey device may be detected by the photodetector (4). This photodetector is preferably constituted by a semiconductor of the photodiode or phototransistor type, which functions in the electrical domain whereby light is transformed into a photocurrent. The coupling (2) is linked by fusion or mechanical connection to another 2x2 coupling to the optical fiber (5), also termed bi-directional coupler. The other source of entry (6) of the 2x2 coupling is constituted, in reality, by an exit, so that the light processed by the survey device may be detected by the photodetector (7). This photodetector is preferably constituted by a semiconductor of the photodiode or phototransistor type. The exit of the coupling (5) is linked by fusion or mechanical connection to the two extensions of optical fiber, one is termed sensitive extension (8) and the other is termed reference extension (9). Part of the optical fiber of the sensitive extension (8) may be coiled around a certain number of rings of a certain diameter, so as to constitute a polarization controller (10) of the propagating light. The

sensitive optical fiber (11) is linked by fusion or mechanical connection in a manner as to provide continuity to the sensitive extension (8) of the optical circuit for survey. This fiber permits that the evanescent-field be accessed when put in direct physical contact with some biological medium (12). The sensitive optical fiber may be connected at extremities (13) and (14) to the rest of the optical circuit, termed demodulation circuit. The exit (15) of the sensitive extension (8) allows the light processed by the device to be detected by the ~~photodetector (11)~~ photodetector (16). This photodetector will be constituted, preferably, of a semiconductor of the photodiode or phototransistor type. The other exit of the coupling (5) shall be linked by physical or mechanical connection to the reference extension (9), where part of the optical fiber that constitutes it is coiled around another polarization controller (17). The exit (18) of the reference extension (9) allows the reference light of the device to be detected by the photodetector (19). This photodetector will be constituted, preferably, of a semiconductor of the photodiode or phototransistor type. The light processed by the survey device emerges from the exit (15) and is detected by the photodetector (16). This photodetector will be constituted, preferably, of a semiconductor of the photodiode or phototransmitor type. The reference light emerges from the exit (18) and is detected by photodetector 19. In this manner, the device functions based on the modulation of the intensity (amplitude) of light. The 2x2 fiber optic coupling (20) possesses two entries (21) and (22). The exit (15) of the sensitive extension (8) may be directly linked or mechanically connected to the exit (18) of the reference extension (9). In this case, the device formed shall be a Sagnac fiber optic interferometer where the photodetector (4) detects the reflected optical signal whilst the photodetector (7) detects the optical signal transmitted by the device. If the exits (15) and (18) were to be reflective in a manner that light were at both extremities, the device formed will be a Michelson fiber optic interferometer where the photodetectors (4) and (7) will detect the processed optical signal. The links (13) and (14) can merely be done through the use of mechanical connections. In this case, the cleaved extremities of the sensitive optical fiber (11) may be semi-reflective, so that a fraction of the light may undergo multiple reflections in the sensitive optical fiber (11). In this manner, the device form shall be a Fabry-Perot fiber optic interferometer, where the

signals shall be detected by photodetector (16) e (19). The exits (15) and (18) may be linked by fusion or mechanical connection to the entries (21) and (22), respectively, of the coupling (20). In this case, the device formed shall be a Mach-Zehnder fiber optic interferometer, where the signals shall be detected by photodetectors (23) and (24) after emerging from extremities (25) and (26) of the optical fiber.